IN THE CLAIMS

1.   (Currently Amended) A method, comprising:

   determining, by a device that shares an upstream channel with other devices, whether

         based, at least in part on particular data, an upstream channel data transfer rate

         can be improved over a current data transfer rate of a current upstream channel

         from the device to a remote system; and

   improving by the device, if the upstream channel data transfer rate can be improved,

         the upstream channel data transfer rate based, at least in part, on the particular

         data,

   wherein the particular data comprise the device's transmit queue capacity data,

         upstream channel bandwidth data transmitted from the remote system, or both.

2.   (Original) The method of claim 1, wherein the device that shares the upstream channel

with other devices comprises a cable modem.

3.   (Original) The method of claim 2, wherein the remote system comprises a cable

modem termination system (CMTS).

4.   (Canceled)

5.   (Currently Amended) The method of claim 3[[4]], wherein determining whether the

upstream channel data transfer rate can be improved comprises determining whether the

transmit queue capacity data indicates that the transmit queue is full.

6.   (Original) The method of claim 5, wherein improving by the cable modem the upstream channel data transfer rate based, at least in part, on the particular data comprises:

if the transmit queue capacity data indicates that the transmit queue is full:

determining whether a capacity of the transmit queue is at a maximum capacity; and

increasing the capacity of the transmit queue, if the capacity is not at the maximum capacity.

7.   (Original) The method of claim 5, wherein improving by the cable modem the upstream channel data transfer rate based, at least in part, on the particular data comprises:

if the transmit queue capacity data indicates that the transmit queue is full:

determining whether a capacity of the transmit queue is at a maximum capacity; and

initiating a service flow, if the capacity of the transmit queue is at the maximum capacity.

8.   (Canceled)

9.   (Currently Amended) The method of claim 3[[8]], wherein the bandwidth data comprises an upstream channel descriptor (UCD) message and an upstream bandwidth allocation map (MAP) message.

10.   (Original) The method of claim 9, wherein determining whether the upstream channel data transfer rate can be improved comprises:

receiving the UCD message from the CMTS for each upstream channel, including the current upstream channel the cable modem is using;

receiving the MAP message from the CMTS for each upstream channel;

calculating an available bandwidth of each upstream channel based, at least in part, on the UCD message and the MAP message; and

determining whether a different upstream channel has more bandwidth that the current upstream channel.

11. (Original) The method of claim 10, wherein improving by the cable modem the upstream channel data transfer rate based, at least in part, on the particular data comprises switching to the different upstream channel, if the different upstream channel has more available bandwidth than the current upstream channel.

12. (Currently Amended) An article of manufacture comprising:
a machine-accessible medium including thereon sequences of instructions that, when executed, cause a device that shares an upstream channel with other devices to:

determine whether based, at least in part on particular data, an upstream channel data transfer rate can be improved over a current data transfer rate of a current upstream channel from the device to a remote system; and

improve, if the upstream channel data transfer rate can be improved, the upstream channel data transfer rate based, at least in part, on the particular data, wherein the particular data comprise the device's transmit queue capacity data, upstream channel bandwidth data transmitted from the remote system, or both.

13. (Original) The article of manufacture of claim 12, wherein the device that shares the upstream channel with other devices comprises a cable modem.

14. (Original) The article of manufacture of claim 13, wherein the remote system comprises a cable modem termination system (CMTS).

15. (Canceled)

16.   (Currently Amended) The article of manufacture of claim 14[[15]], wherein the sequences of instructions that, when executed, cause the device to determine whether the upstream channel data transfer rate can be improved comprise sequences of instructions that, when executed, cause the device to determine whether the transmit queue capacity data indicates that the transmit queue is full.

17.   (Original) The article of manufacture of claim 16, wherein the sequences of instructions that, when executed, cause the device to improve by the device the upstream channel data transfer rate based, at least in part, on the particular data comprise sequences of instructions that, when executed, cause the device to:

      if the transmit queue capacity data indicates that the transmit queue is full:

      determine whether a capacity of the transmit queue is at a maximum capacity; and

            increase the capacity of the transmit queue, if the capacity is not at the maximum capacity.

18.   (Original) The article of manufacture of claim 16, wherein the sequences of instructions that, when executed, cause the device to improve by the device the upstream channel data transfer rate based, at least in part, on the particular data comprise sequences of instructions that, when executed, cause the device to:

      if the transmit queue capacity data indicates that the transmit queue is full:

      determine whether a capacity of the transmit queue is at a maximum capacity; and

      initiate a service flow, if the capacity of the transmit queue is at the maximum capacity.

19.   (Canceled)

20.   (Currently Amended) The article of manufacture of claim 14[[19]], wherein the bandwidth data comprises an upstream channel descriptor (UCD) message and an upstream bandwidth allocation map (MAP) message.

21.   (Original) The article of manufacture of claim 16, wherein the sequences of instructions that, when executed, cause the device to determine whether the upstream channel data transfer rate can be improved comprise sequences of instructions that, when executed, cause the device to:

      receive the UCD message from the CMTS for each upstream channel, including the
           current upstream channel the cable modem is using;

      receive the MAP message from the CMTS for each upstream channel;

      calculate an available bandwidth of each upstream channel based, at least in part, on
           the UCD message and the MAP message; and

      determine whether a different channel has more bandwidth that the current upstream
           channel.

22.   (Original) The article of manufacture of claim 21, wherein the sequences of instructions that, when executed, cause the device to improve the upstream channel data transfer rate based, at least in part, on the particular data comprise sequences of instructions that, when executed, cause the device to switch to the different upstream channel, if the different upstream channel has more available bandwidth than the current upstream channel.

23.   (Currently Amended) An apparatus, comprising:

      an improvement determination unit (IDU), to determine, based at least in part on
           particular data, whether an upstream channel data transfer rate can be improved

over a current data transfer rate of a current upstream channel to a remote

system; and

an improvement unit, coupled with the IDU, to improve, if the upstream channel data

transfer rate can be improved, the upstream channel data transfer rate based, at

least in part, on the particular data,

wherein the particular data comprise the device's transmit queue capacity data,

upstream channel bandwidth data transmitted from the remote system, or both.

24.   (Original) The apparatus of claim 23, wherein the particular data comprises cable
modem transmit queue capacity data.

25.   (Original) The apparatus of claim 24, wherein the particular data comprises upstream
channel bandwidth data transmitted from the CMTS.

26.   (Currently Amended) A system, comprising:

a cable modem termination system, to transmit and receive data packets;

customer premise equipment (CPE), to receive the data packets from the CMTS and

transmit the data packets to the CMTS;

a cable modem, coupled with the CMTS and the CPE, to determine whether, based at

least in part on particular data, an upstream channel data transfer rate can be

improved over a current data transfer rate of a current upstream channel from

the cable modem to the CMTS, and improve, if the upstream channel data rate

can be improved, the upstream channel data transfer rate based, at least in part,

on the particular data; and

a coaxial cable, to couple the cable modem with the CMTS and transmit the data

packets between the cable modem and the CMTS.

wherein the particular data comprise the device's transmit queue capacity data, upstream channel bandwidth data transmitted from the remote system, or both.

27.   (Original) The system of claim 26, wherein the cable modem is integrated with the CPE.

28.   (Canceled)

29.   (Canceled)